

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A water-soluble vinyl-based polymer compound ~~having~~ ~~sugar chain(s) comprising: a monosaccharide or an oligosaccharide residue bound to side chain(s) of a water-soluble polymer through a linker containing a selectively cleavable bond, the water-soluble polymer containing 20 to 80 mol% of (meth)acrylic acid residue, and the linker being bonded to a repeating unit other than (meth)acrylic acid residue~~

(i) 20 to 80 mol% of (meth)acrylic acid residue;

(ii) 0.1 to 50 mol% of a first vinyl monomer residue comprising a sugar chain and a linker, the sugar chain comprising a monosaccharide or an oligosaccharide residue and the linker comprising a selectively cleavable bond; and

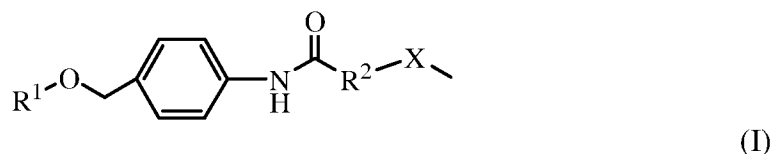
(iii) at least a second vinyl monomer residue different from the (meth)acrylic acid residue and the first vinyl monomer residue.

2. (Currently Amended) A compound according to Claim 1, ~~wherein further comprising amino acid or peptide residues bound to a~~ the monosaccharide or an oligosaccharide residues are linked to side chain(s) of the water-soluble polymer through a linker containing a selectively cleavable bond, the water-soluble polymer containing 20 to 80 mol% of (meth)acrylic acid residue, and the linker being bound to a repeating unit other than (meth)acrylic acid residue.

3. (Currently Amended) A compound according to Claim 1, wherein ~~the water-soluble polymer is a copolymer comprising 20 to 80 mol% of (meth)acrylic acid and 80 to 20 mol% of one or more~~ the first vinyl monomers monomer residue is selected from the group consisting of acrylamide derivatives, methacrylamide derivatives, acrylic esters, methacrylic esters, styrene derivatives and fatty-acid vinyl esters.

4. (Previously Presented) A compound according to Claim 1, wherein the selectively cleavable bond contained in the linker can be cleaved by hydrogenolysis or by oxidation using 2,3-dichloro-5,6-dicyanobenzoquinone.

5. (Withdrawn-Currently Amended) A compound according to Claim 1, wherein the linker and the sugar chain together is a group represented by General Formula (I),

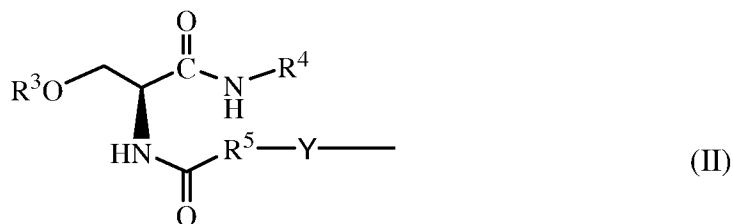


wherein R¹ is a monosaccharide or an oligosaccharide residue, R² is a bivalent linking group with a length equivalent to 4 to 20 methylene groups, and X is O, S, or NH.

6. (Withdrawn) A compound according to Claim 5, wherein R¹ is an N-acetylglucosamine residue, a glucose residue or a lactose residue.

7. (Withdrawn) A compound according to Claim 5, wherein R² is a pentylene group.

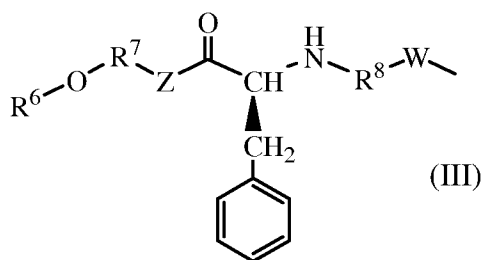
8. (Currently Amended) A compound according to Claim 1, wherein the linker and the sugar chain together is a group represented by General Formula (II),



wherein R³ is a monosaccharide or an oligosaccharide residue, R⁴ is a C₆₋₂₀ alkyl or alkenyl group, R⁵ is a bivalent linking group with a length equivalent to 5 to 19 methylene groups, and Y is O, S, or NH.

9. (Original) A compound according to Claim 8, wherein R³ is a glucose or lactose residue.

10. (Withdrawn-Currently Amended) A compound according to Claim 1, wherein the linker and the sugar chain together is a group represented by General Formula (III),



wherein R⁶ is a monosaccharide or an oligosaccharide residue, R⁷ is a bivalent linking group with a length equivalent to 2 to 20 methylene groups, R⁸ is a bivalent linking group with a length equivalent to 5 to 19 methylene groups, and Z and W are each independently O, S, or NH.

11. (Withdrawn) A compound according to Claim 10, wherein R⁶ is an N-acetylglucosamine residue.

12. (Original) A compound according to Claim 2, wherein the peptide residue consists of 2 to 30 amino acid residues.

13. (Previously Presented) A compound according to Claim 1, wherein the selectively cleavable bond contained in the linker can be cleaved by an appropriate hydrolase.

14. (Original) A compound according to Claim 13, wherein the appropriate hydrolase is ceramide glycanase or α -chymotrypsin.

15. (Original) A compound according to Claim 13, wherein the appropriate hydrolase is a protease that does not have a cleavage site in an amino acid or peptide residue to which a monosaccharide or an oligosaccharide residue is bound.

16. (Withdrawn) A compound according to Claim 15, wherein the linker containing a selectively cleavable bond that is linked to an amino acid or a peptide residue bound to a monosaccharide or an oligosaccharide residue is a group represented by General Formula (IV),



wherein R^9 is a bivalent linking group with a length equivalent to 1 to 20 methylene groups and is linked to the water-soluble polymer compound, and R^{10} is an amino acid or a peptide residue containing a cleavable site by an appropriate protease and is bound to a monosaccharide or an oligosaccharide residue, and that the monosaccharide or oligosaccharide residue is bound to a side chain functional group of Asn, Asp, Cys, Gln, Glu, Lys, Ser, Thr or Tyr residue, or to a side chain functional group of the amino acid residue in a peptide residue directly or through a bivalent linking group via a glycosidic bond.

17. (Withdrawn) A compound according to Claim 16, wherein R^9 is a group represented by General Formula (V),



wherein A is O, CH_2 , $C=O$, or NH, the group is linked to a side chain of the water-soluble polymer through A, and n is an integer from 1 to 18.

18. (Withdrawn) A compound according to Claim 16, wherein the bivalent linking group bound to the side chain functional group is a group with a length equivalent to 1 to 20 methylene groups.

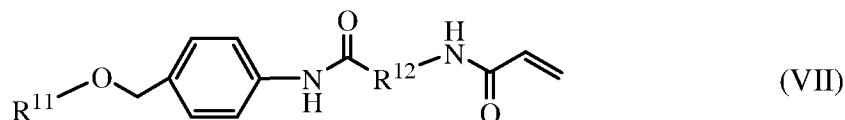
19. (Withdrawn) A compound according to Claim 16, wherein the bivalent linking group linked to the side chain functional group is a group represented by General Formula (VI),



wherein B is O, NH, or C=O, the group is linked to the side chain functional group of an amino acid residue through B, and n is an integer from 1 to 18.

20. (Currently Amended) A water-soluble polymer primer for glycoconjugate synthesis comprising a water-soluble vinyl-based polymer compound ~~having sugar chain(s)~~ according to Claim 1.

21. (Withdrawn) A method for producing a water-soluble polymer compound having sugar chain(s) comprising a step of copolymerization of (meth)acrylic acid, a (meth)acrylamide derivative represented by General Formula (VII),



wherein R¹¹ is a monosaccharide or an oligosaccharide residue, and R¹² is a bivalent linking group with a length equivalent to 4 to 20 methylene groups, and at least one vinyl monomer in such a manner that the proportion of the (meth)acrylic acid in the total vinyl copolymers is 20 to 80 mol%.

22. (Withdrawn) A method according to Claim 21, wherein R¹¹ is an N-acetylglucosamine residue, a glucose residue, or a lactose residue.

23. (Withdrawn) A method according to Claim 21, wherein R¹² is a pentylene group.

24. (Withdrawn) A method according to Claim 21, wherein the vinyl monomer is at least one monomer selected from the group consisting of acrylamide derivatives, methacrylamide derivatives, acrylic esters, methacrylic acid esters, styrene derivatives, and fatty acid vinyl esters.

25. (Currently Amended) A method for producing a glycoconjugate comprising the steps of:

transferring a sugar residue from a sugar nucleotide to a polymer compound by contacting a water-soluble vinyl-based polymer compound ~~having sugar chain(s)~~ of Claim 1 with a glycosyltransferase in the presence of a sugar nucleotide,

elongating the sugar chain by repeating the transferring step 1 two or more times if necessary,

removing by-product nucleotides or unreacted sugar nucleotides if necessary, and

after repeating the above steps 1 ~~to 3~~ two or more times, releasing the resultant glycoconjugate sugar chain from the water-soluble polymer compound which binds the sugar chain elongated by the transfer of the plurality of sugar residues.

26. (Currently Amended) A method for producing a glycoconjugate comprising the steps of:

transferring a sugar residue from a sugar nucleotide to a water-soluble polymer compound by the action of a glycosyltransferase to the water-soluble vinyl-based polymer compound ~~having sugar chain(s)~~ of Claim 8 in the presence of a sugar nucleotide,

elongating the sugar chain by repeating the transferring step 1 two or more times if necessary,

removing by-product nucleotides or unreacted sugar nucleotides if necessary and

after repeating the above steps 1 ~~to 3~~ two or more times, transferring the resultant oligosaccharide elongated by transfer of the plurality of sugar residues from the water-soluble polymer compound to ceramide by the action of ceramide glycanase in the presence of ceramide.